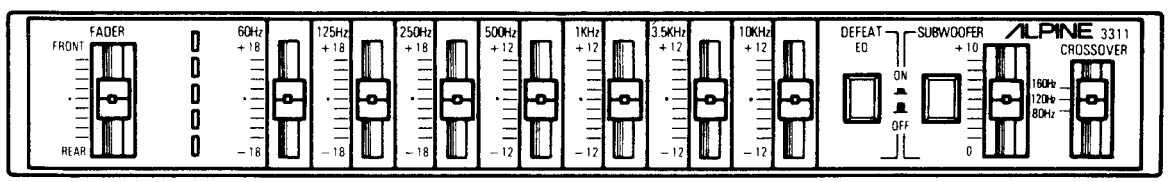
ALPINE SERVICE MANUAL

Pre-Amp 7-Band Graphic Equalizer with Subwoofer Output



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Specifications

Power Supply	14V DC (11.0V to 16.0V allowable)
Grounding System	Negative Type
Current Drain	700mA
Equalization Range	±12dB
Equalization Frequency	60 Hz/125 Hz/250 Hz/500 Hz/1 kHz/3.5 kHz/10 kHz
Frequency Response (±3dB at 0.5 Vms)	35 Hz to 15 kHz
Output Noise (Input shorted)	1 mV
Input Sensitivity/Impedance	500 mV±2 dB/10k±2k ohms
Channel Separation (at 1,000Hz)	Less than 40 dB
Signal to Noise Ratio (IHF-A)	100 dB
Total Harmonic Distortion	1.0%
Equalizer Tone Action	
(60/125/250 Hz)	±14 dB
(500/1k/3.5k/10 kHz)	±8 dB
Frequency Crossover Point	80/120/160 Hz
Crossover Slope	18±5 dB
Output Impedance/Level	10k ohms/500 mV
Semiconductors	7 ICs, 2 Transistors, 12 diodes, 1 Zener Diode
Dimensions (W×H×D)	178(W)×25(H)×123(D) mm
Weight	1 kg

Parts Locations and Disassembly Instructions

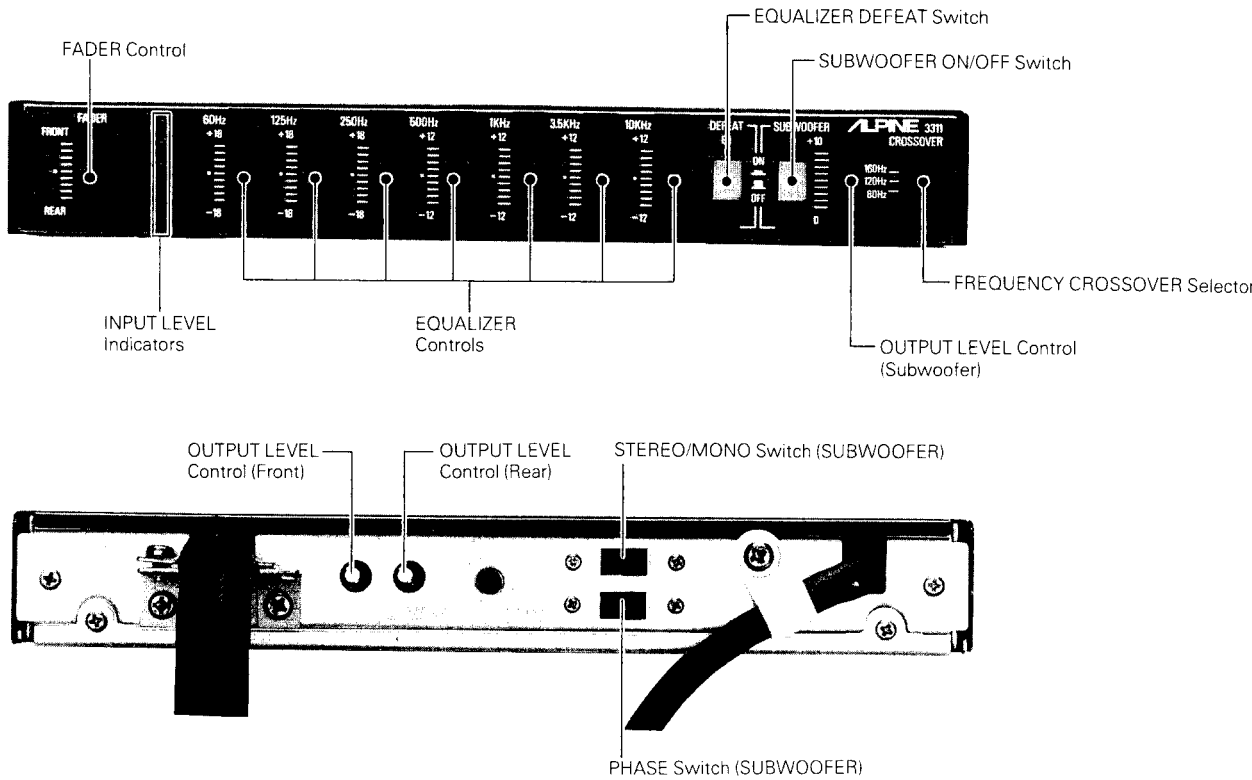


Figure 1

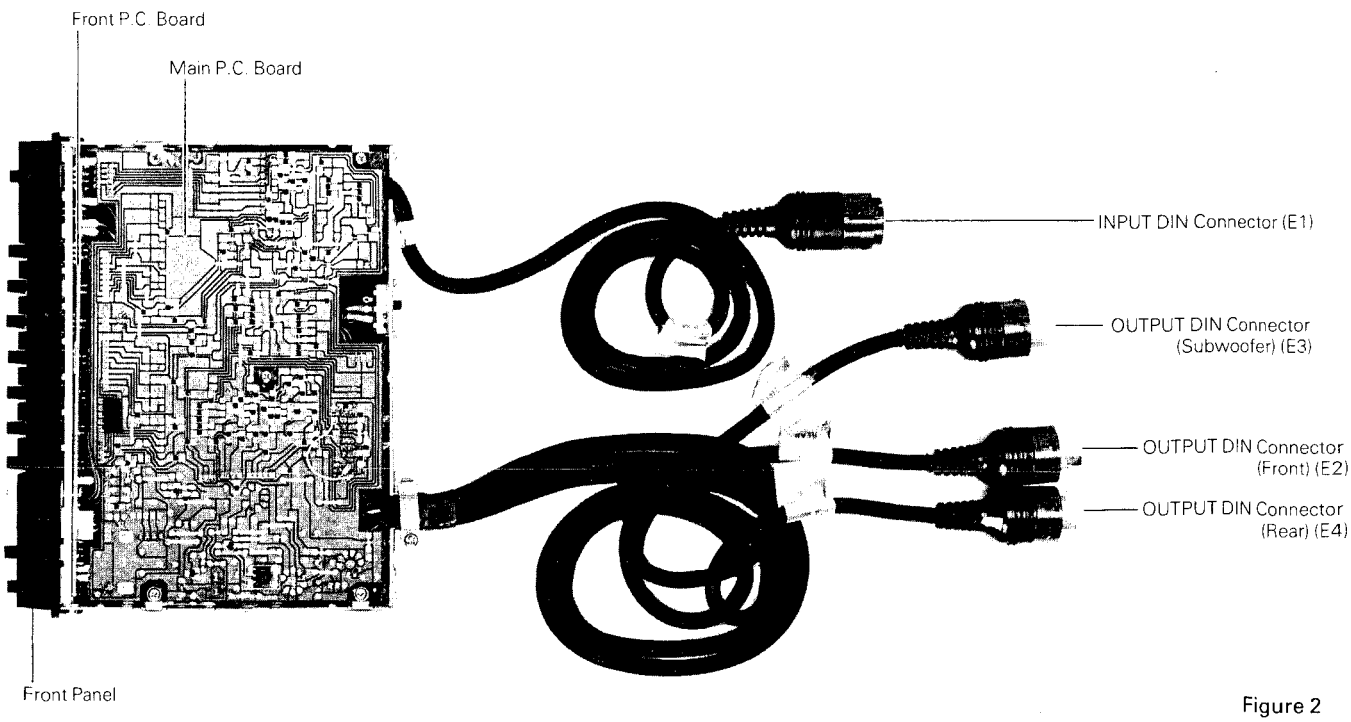


Figure 2

1. Removal of Top Cover and Bottom Cover

(1) Remove four screws marked "○" in Figure 3.
(2) Pull out the top cover in the direction of the arrow as shown in Figure 3.
(3) Remove two screws marked "▲" in Figure 4.
(4) Pull out the bottom cover in the direction of the arrow as shown in Figure 4.

2. Removal of Nosepiece

(1) After removal of the top cover, remove two screws marked "●" in Figure 5.
(2) Remove ten knobs as shown in Figure 5.

3. Removal of Main P.C. Board

(1) After removal of the top cover, remove five screws marked "△" in Figure 5.
(2) Disconnect all connectors and wires from other P.C. boards.

4. Removal of Filter P.C. Board

(1) After removal of the bottom cover remove three screws marked "□" in Figure 6.
(2) Disconnect all connectors and wires from other P.C. boards.

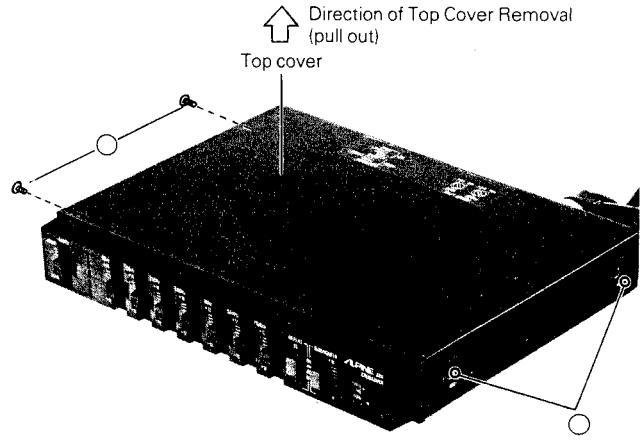


Figure 3

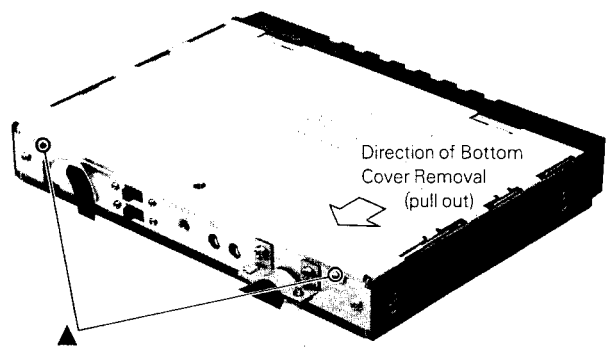


Figure 4

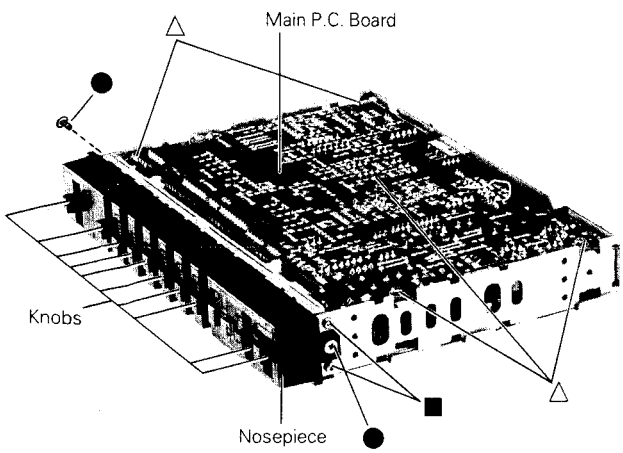


Figure 5

5. Removal of Switching P.C. Board

(1) The switching P.C. board is covered with fabric insulation tape. Remove the tape to disconnect all wires from the filter P.C. board.

6. Removal of Front P.C. Board

(1) Remove four screws marked "■" in Figure 6 to dismount the front chassis.

(2) After removal of the front chassis, remove two screws marked "*" in Figure 7 to disconnect all connectors and wires from other P.C. boards.

7. Removal of Crossover P.C. Board

(1) Disconnect all wires from other P.C. boards.

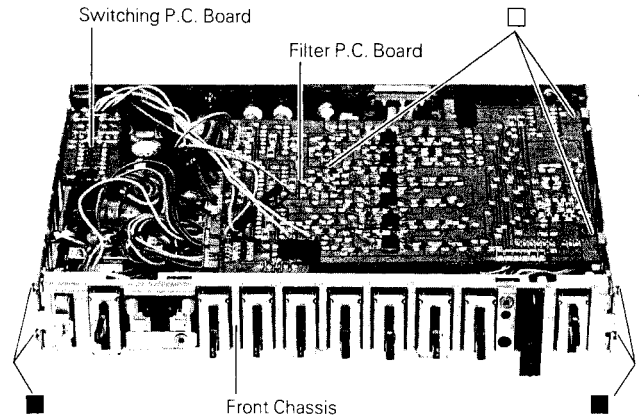


Figure 6

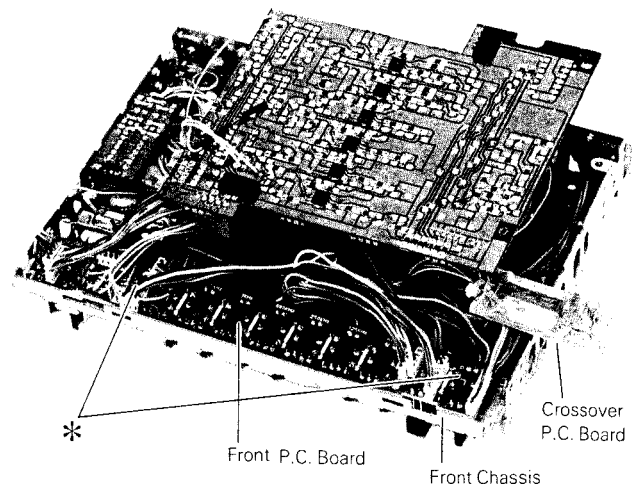
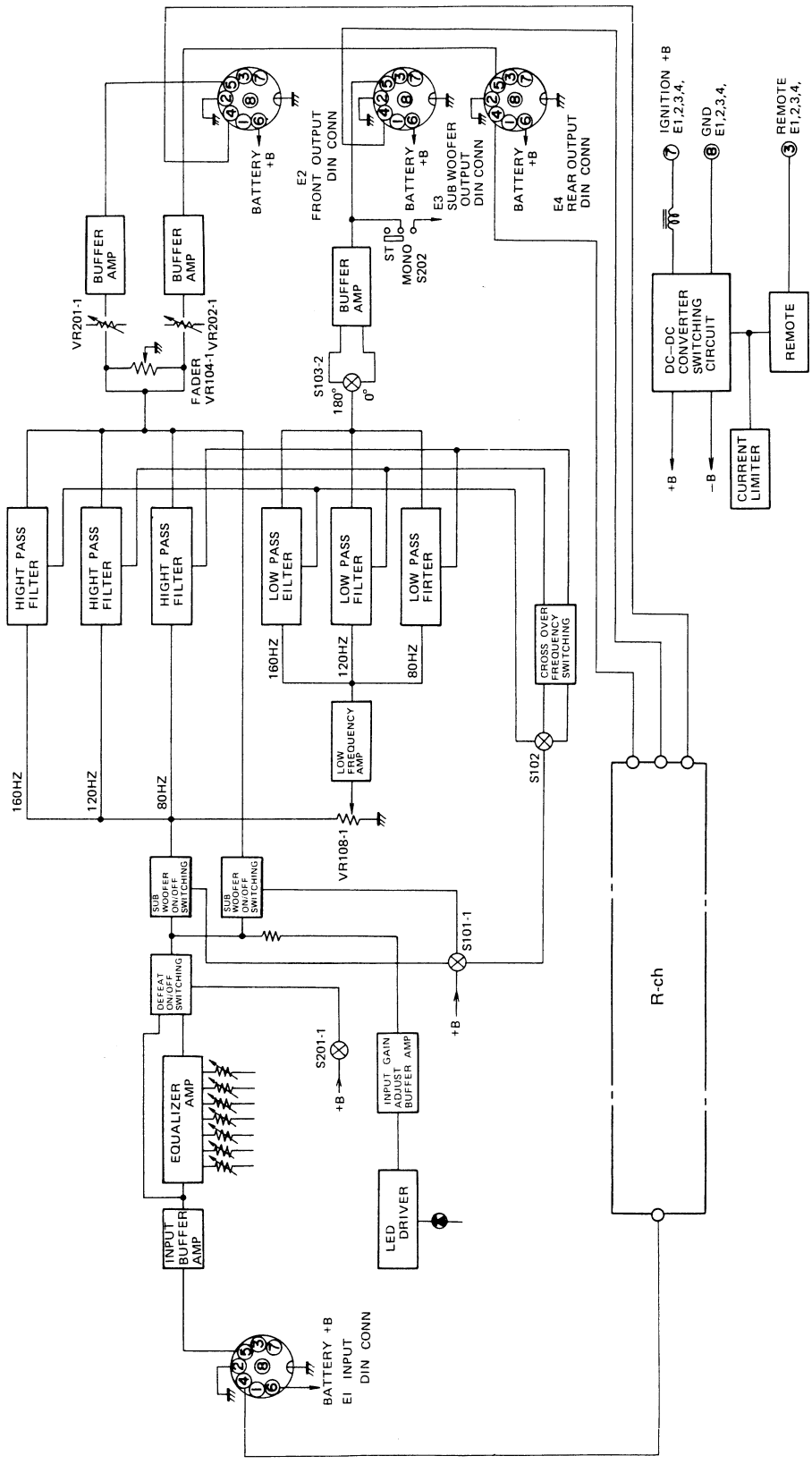


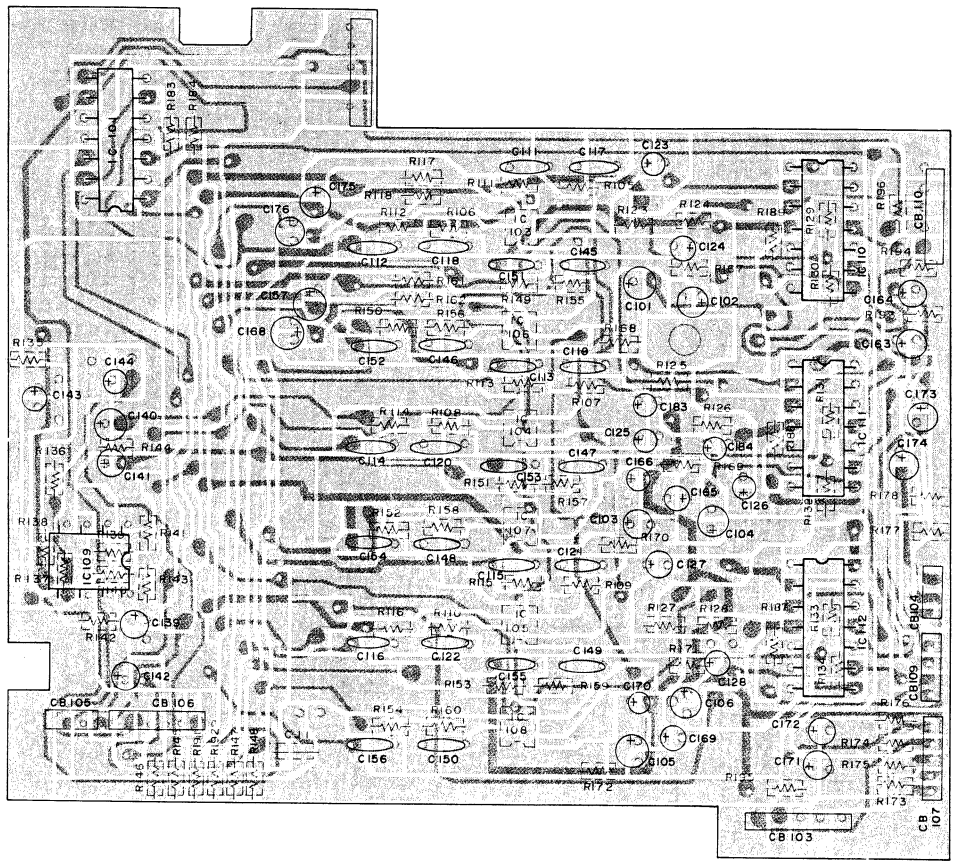
Figure 7

Block Diagram



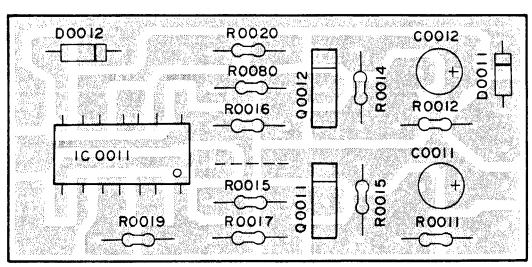
Parts Layout on P.C. Boards

- **Filter P.C. Board**

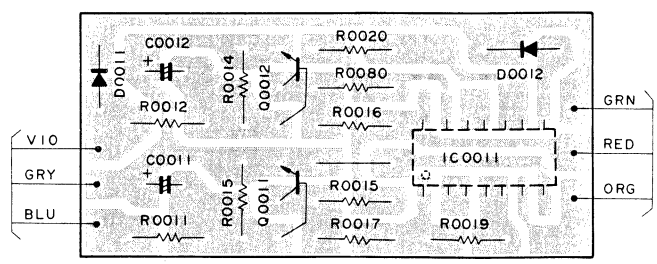


Top View

- **Crossover P.C. Board**

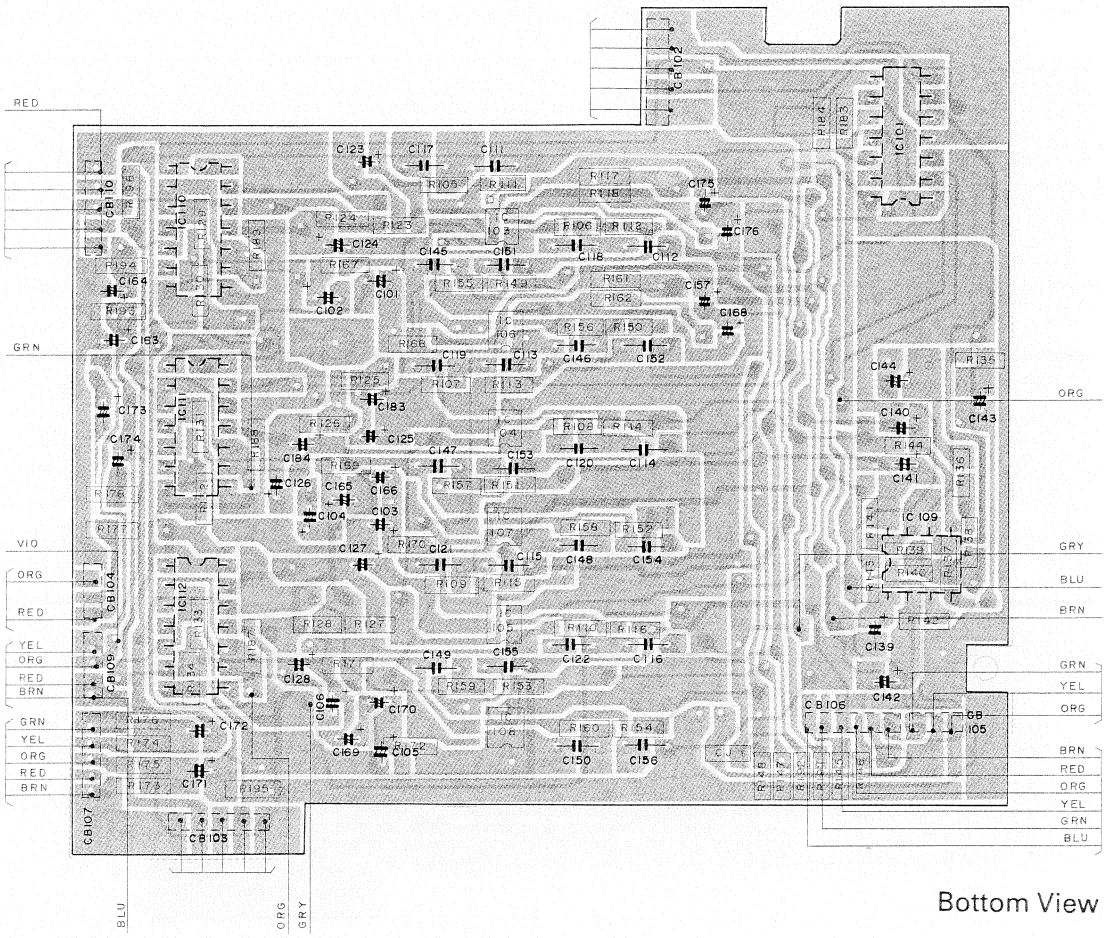


Top View



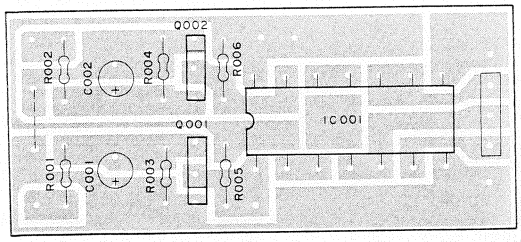
Bottom View

• Filter P.C. Board

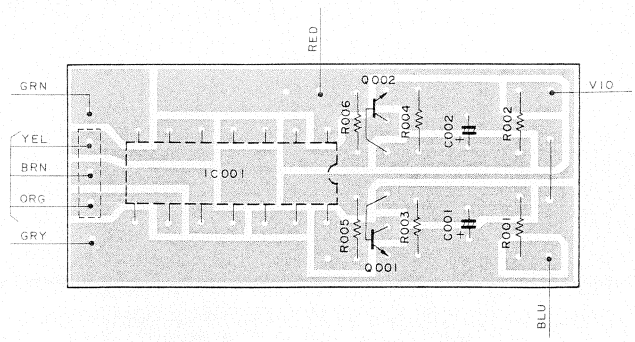


Bottom View

• Switching P.C. Board



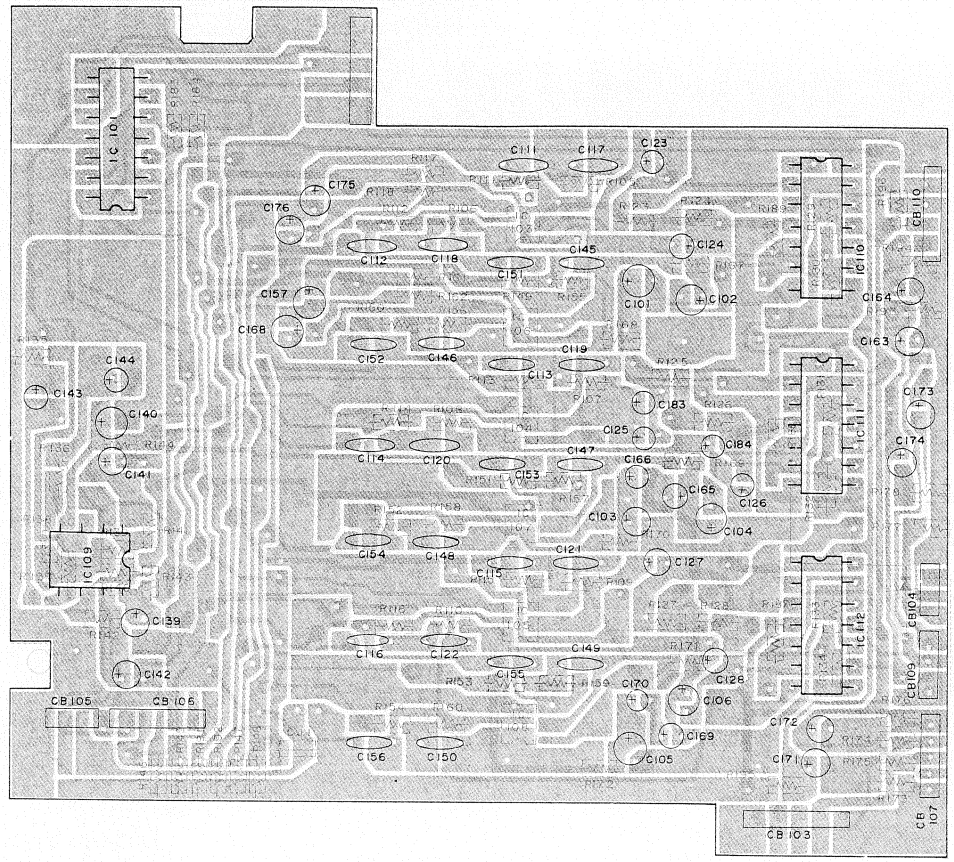
Top View



Bottom View

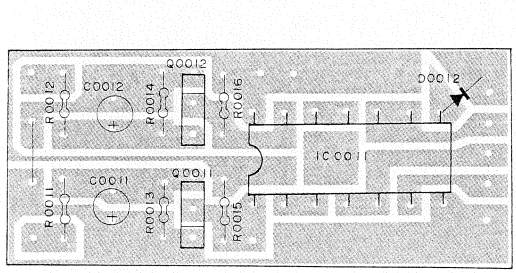
A B C D E F

- **Filter P.C. Board**
- For North American Version only (Before Serial No. 40812000).

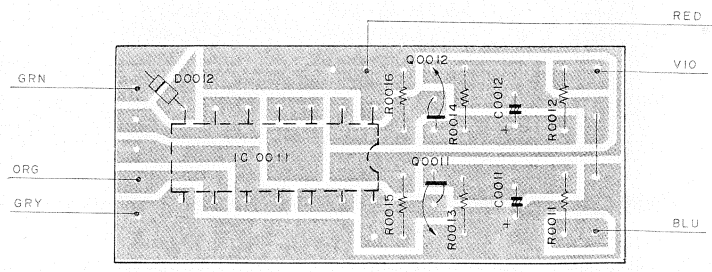


Top View

- **Crossover P.C. Board**
- For North American Version only (Before Serial No. 40812000).

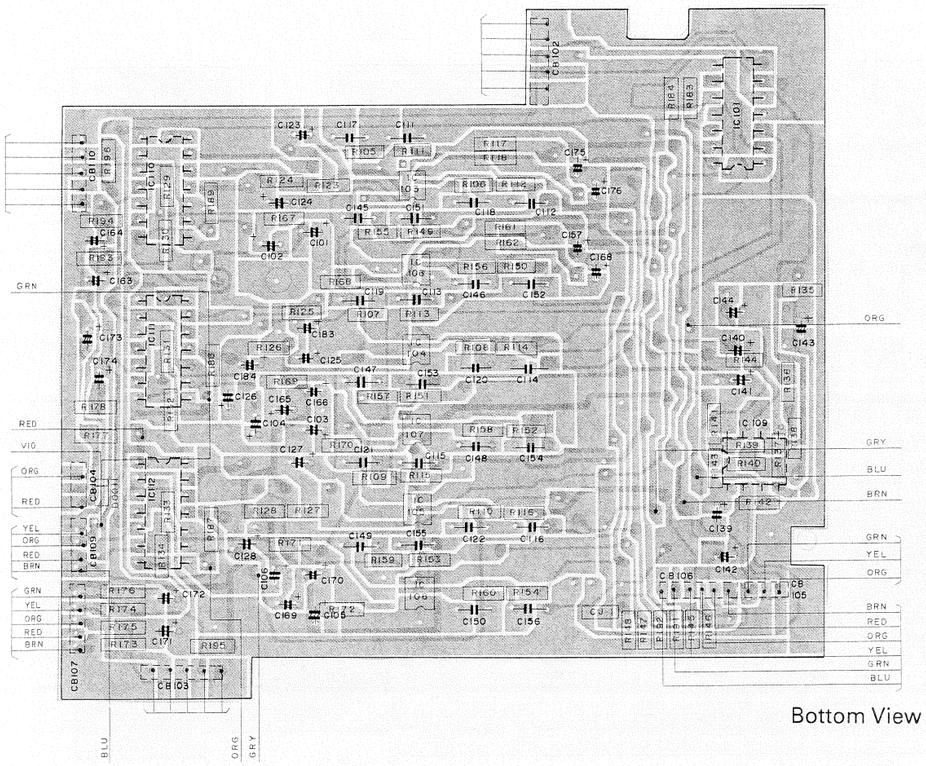


Top View



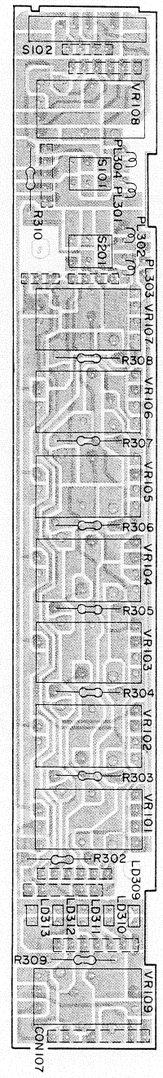
Bottom View

- **Filter P.C. Board**
- For North American Version only (Before Serial No. 40812000).

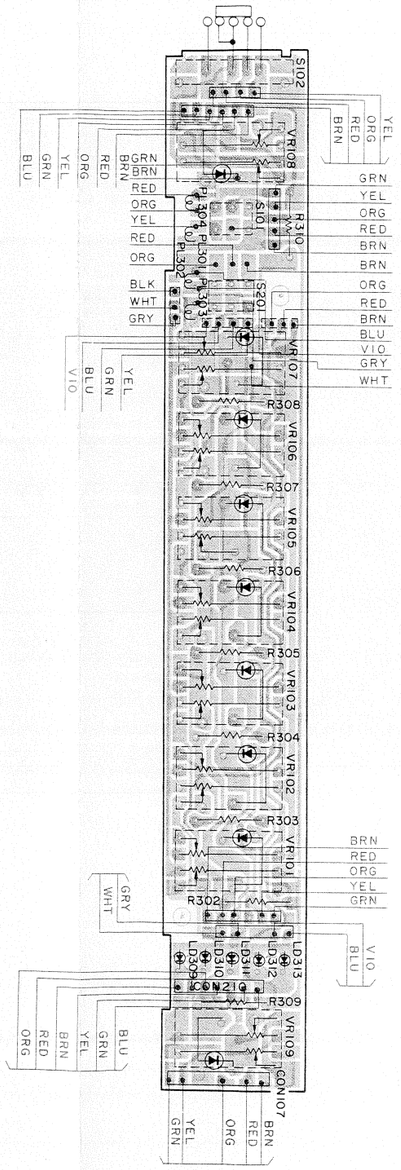


Bottom View

- **Front P.C. Board**

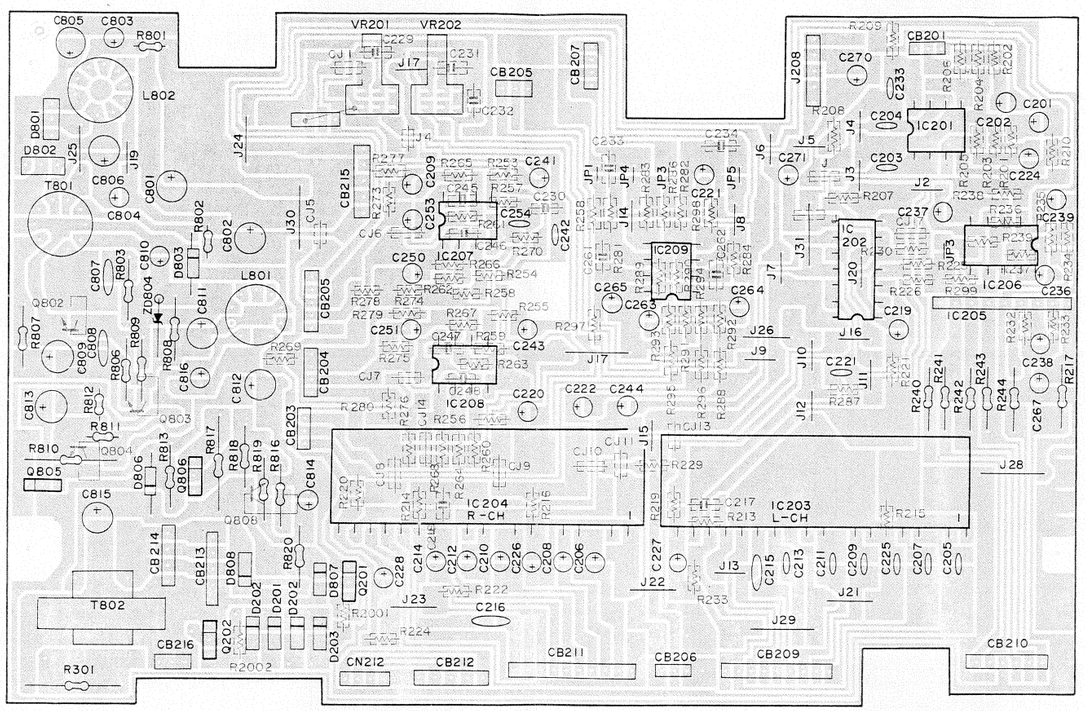


Top View

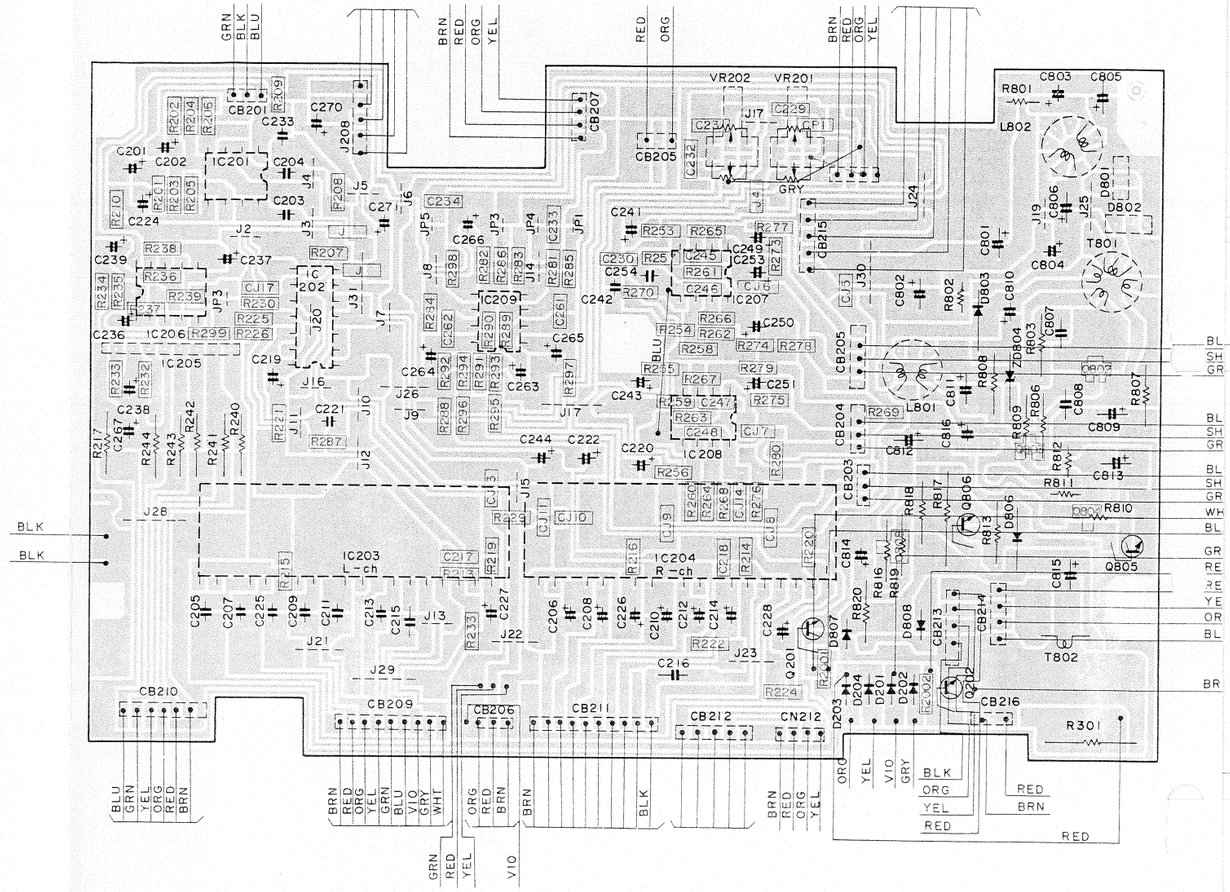


Bottom View

• **Main P.C. Board** (Top View)



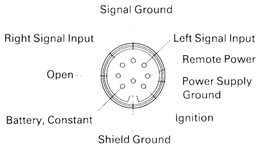
• **Main P.C. Board** (Bottom View)



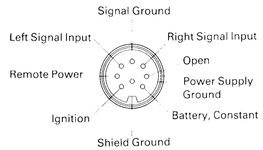
Schematic Diagram

ICs	IC201 – IC206	IC0001	IC101	IC103 – IC109	IC0011	IC111 IC112	IC207 – IC209
Transistors	Q0001 Q0002	Q802 – Q806	Q201 Q202 Q808	Q0011 Q0012			
Diodes	LD301 – LD314 D801 – D804	D201 – D204	D806– D808		D0011 D0012		

• INPUT DIN connector Pin Configuration



• OUTPUT DIN connector Pin Configuration



UNLESS OTHERWISE SPECIFIED,

1. ALL RESISTANCE VALUES ARE IN OHMS K – 1,000 M – 1,000,000
2. ALL RESISTORS ARE RATED AT ⅙ WATT, 5%
3. ALL CAPACITANCE VALUES ARE IN MICRO-FARAD (μF) P – 10 ⁻⁶μF
4. ALL CAPACITORS ARE RATED AT 500WV

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲
IC201	0	0	0	–7.7	0	0	0	7.7											
IC202	0	0	0	0	8.1	8.1	–8.1	0	0	0	0	–8.1	–8.1	8.1					
IC203,204	0	–		0	0		–6.5	0		0	–		0	0	0	0	0	0	6.5
IC206	0	0	0	–7.7	–	–	–	7.7											
IC205	11.7	11.7	11.7	11.7	0	11.7	0	0	12.7										

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
IC101	0	0	0	0	8.1	–8.1	–8.1	0	0	0	0	8.1	8.1	8.1
IC103	0	0	0	–7.0	0	0	0	7.0						
IC104	0	0	0	–7.0	0	0	0	7.0						
IC105	0	0	0	–7.0	0	0	0	7.0						
IC106	0	0	0	–7.0	0	0	0	7.0						
IC110,111 112	0	0	0	0	–8.1	–8.1	–8.1	0	0	0	0	–8.1	–8.1	–8.1

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧
IC107	0	0	0	–7.0	0	0	0	7.0
IC108	0	0	0	–7.0	0	0	0	7.0
IC109	0	0	0	–7.8	0	0	0	7.8
IC207,208	0	0	0	–7.5	0	0	0	7.5

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
IC209	0	0	0	–7.8	0	0	0	7.8						
IC0001	–8.1	8.1	8.1	–8.1	–8.1	8.1	–8.1	–8.1	8.1	8.1	–8.1	–8.1	8.1	8.1
IC0011	8.1	–8.1	–8.1	8.1	8.1	–8.1	–8.1	–8.1	8.1	8.1	–8.1	–8.1	8.1	8.1

Transistor(V)	B	C	E
Q201	0.4	11.7	0
Q202	0.7	0	0
Q802	0.3	12.0	0
Q803	0	12.0	0.3
Q804	12.3	13.0	12.1
Q805	13.0	13.3	12.3
Q806	12.7	13.3	13.5
Q808	0.7	0	0
Q0001	–7.4	–8.1	–8.1
Q0002	–8.1	8.1	–8.1
Q0011	0	8.1	–8.1
Q0012	–8.1	8.1	–8.1

• For North American Version only
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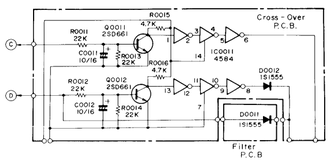
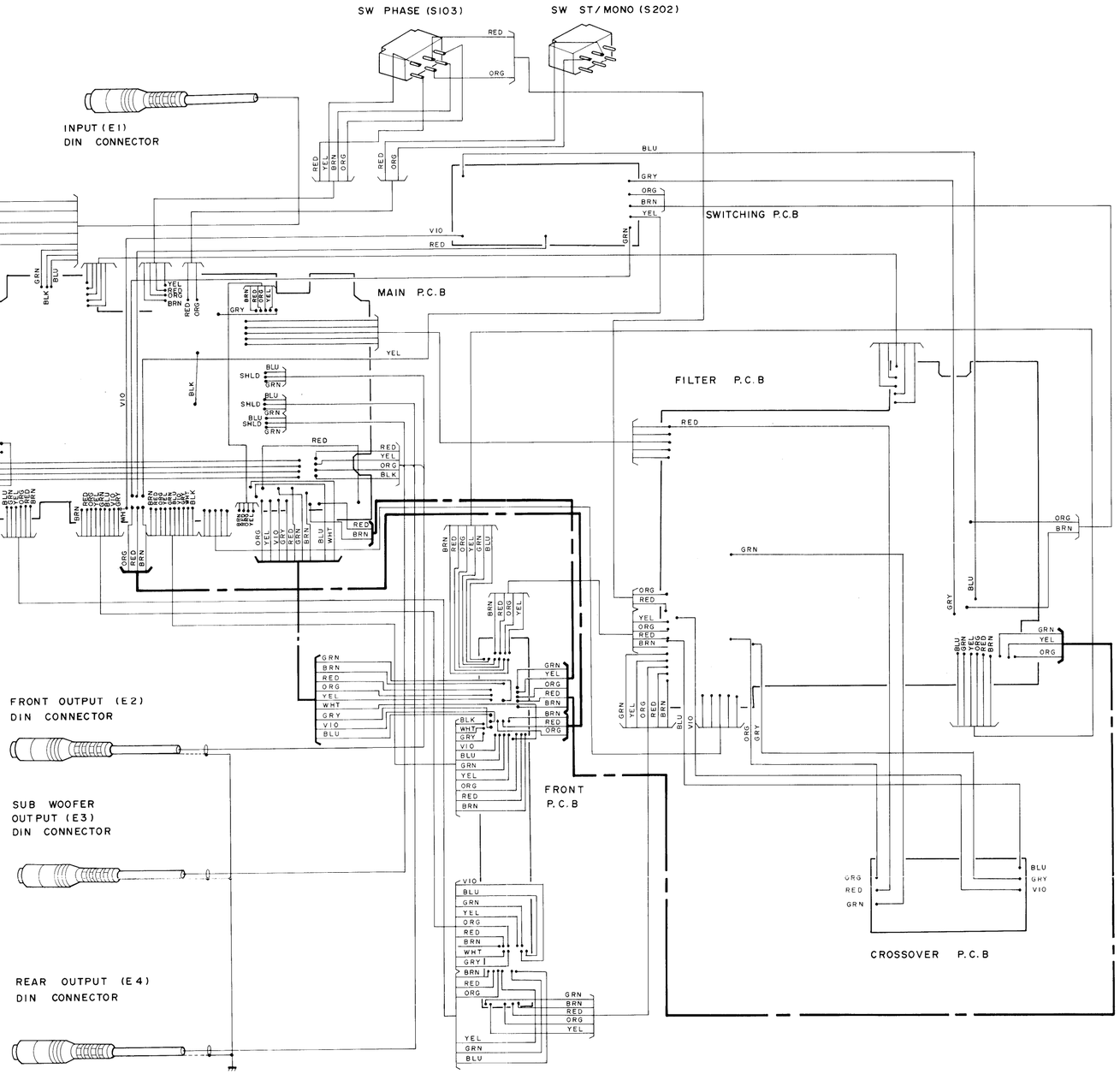


Wiring Diagram



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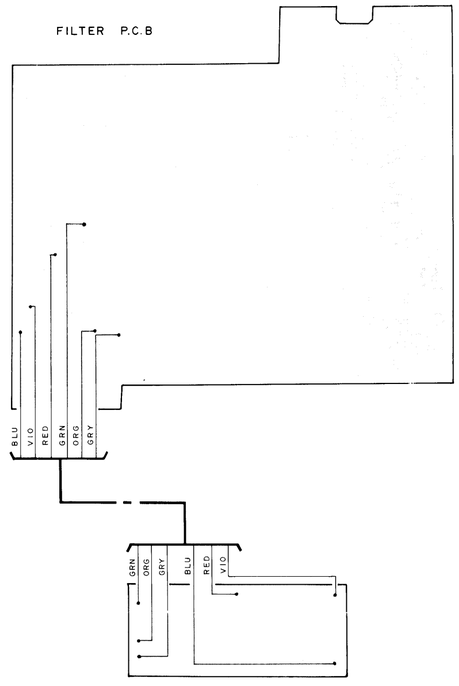


Electrical Parts List

Carbon resistors of less than 1/4 watts are not entered on the parts list, so please confirm them using the schematic diagram.

Symbol No.	Part No.	Description
Front P. C. Board		
LEDs		
LD309	48T66123F02	LED, (GRN) (LEVEL INDICATOR)
LD310	48T66123F02	LED, (GRN) (LEVEL INDICATOR)
LD311	48T66123F03	LED, (ORG) (LEVEL INDICATOR)
LD312	48T66123F03	LED, (ORG) (LEVEL INDICATOR)
LD313	48T66123F01	LED, (RED) (LEVEL INDICATOR)
Lamps		
PL301	65T52397F02	Pilot 5V-60mA
PL302	65T52397F02	Pilot 5V-60mA
PL303	65T52397F02	Pilot 5V-60mA
PL304	65T52397F02	Pilot 5V-60mA
Switches		
S101	40T65584F03	Push SPH221 (SUBWOOFER) (DEFEAT)
S102	40T66116F01	Slide ESD-14185 (CROSSOVER)
S201	40T65584F03	Push SPH221 (SUBWOOFER) (DEFEAT)
Resistors		
VR101	18T65560F01	VR, Slide S1025-KL04 20K
VR102	18T65560F01	VR, Slide S1025-KL04 20K
VR103	18T65560F01	VR, Slide S1025-KL04 20K
VR104	18T65560F01	VR, Slide S1025-KL04 20K
VR105	18T65560F01	VR, Slide S1025-KL04 20K
VR106	18T65560F01	VR, Slide S1025-KL04 20K
VR107	18T65560F01	VR, Slide S1025-KL04 20K
VR108	18T65560F01	VR, Slide S1025 20K (SUBWOOFER)
VR109	18T65560F04	VR, Slide KL05-20KWX2 (FADER)
Main P.C. Board		
ICs		
IC201	51S43471U02	µPC4558C
or	51T52383F01	NJM4558D
IC202	51T52388F01	MSM4066RS
or	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
or	51T52388F02	MSM4066BRS
IC203	51T66124F01	THG21005
IC204	51T66124F01	THG21005
IC205	51T61284F01	LB1403N
IC206	51S43471U02	µPC4558C
or	51T52383F01	NJM4558D
IC207	51S43471U02	µPC4558C
or	51T52383F01	NJM4558D
IC208	51S43471U02	µPC4558C
or	51T52383F01	NJM4558D
IC209	51S43471U02	µPC4558C
or	51T52383F01	NJM4558D
Transistors		
Q201	48T57337F01	2SD1330
Q202	48S43525F02	2SC1815
Q802	48T64974F01	2SD1295
Q803	48T52439F01	TR, CP 2SD602A
Q804	48T52439F01	TR, CP 2SD602A
Q805	48T62033F01	2SC2690
or	48T67156F01	2SD600K
or	48T52979F01	2SD600
Q806	48T64381F01	2SB1009
Q808	48T52439F01	TR, CP 2SD602
Diodes		
D201	48S40477U01	IN4003
D202	48S40477U01	IN4003
D203	48S40477U01	IN4003
D204	48S40477U01	IN4003
D801	48T57042F02	Array DA-203
D802	48T57042F02	Array DA-203
D803	48T60738F01	1S2074H
D806	48C40235G02	10E2
D807	48S40477U01	1N4003
D808	48S40477U01	IN4003
ZD804	48T52739F56	Zenner HZ 9B-2
Coils		
L801	24T60742F01	Coil, MC102
L802	24T60742F01	Coil, MC102
Trans		
T801	25T60741F05	Trans, LC-15(5)
T802	25C40894G11	Choke Trans 1.2µH

Symbol No.	Part No.	Description
Capacitors		
C201	23T61523F12	Electrolytic 10μF 16V
C202	23T61523F12	Electrolytic 10μF 16V
C203	23T61523F12	Electrolytic 10μF 16V
C204	23T61523F12	Electrolytic 10μF 16V
C205	23T61523F30	Electrolytic 2.2μF 50V
C206	23T61523F30	Electrolytic 2.2μF 50V
C207	23T61523F29	Electrolytic 1μF 50V
C208	23T61523F29	Electrolytic 1μF 50V
C209	23T61523F28	Electrolytic 0.47μF 50V
C210	23T61523F28	Electrolytic 0.47μF 50V
C211	23T61523F26	Electrolytic 0.22μF 50V
C212	23T57422F02	Electrolytic 0.22μF 50V
C213	23T61523F25	Electrolytic 0.1μF 50V
C214	23T61523F25	Electrolytic 0.1μF 50V
C215	08T57705F75	Mylar 0.047μF
C216	08T57705F75	Mylar 0.047μF
C217	08S53332F27	CP. 220pF
C218	08S53332F27	CP. 220pF
C219	23T57422F09	Electrolytic 10.0μF 16V
C220	23T61523F12	Electrolytic 10μF 16V
C221	23T57422F09	Electrolytic 10.0μF 16V
C222	23T61523F12	Electrolytic 10μF 16V
C223	23T61523F12	Electrolytic 10μF 16V
C224	23T57422F09	Electrolytic 10.0μF 16V
C225	23T61523F12	Electrolytic 10μF 16V
C226	23T61523F12	Electrolytic 10μF 16V
C227	23T61523F12	Electrolytic 10μF 16V
C228	23T61523F12	Electrolytic 10μF 16V
C229	08S53332F35	CP. 1000pF
C230	08S53332F35	CP. 1000pF
C231	08S53332F35	CP. 1000pF
C232	08S53332F35	CP. 1000pF
C233	08S53332F35	CP. 1000pF
C234	08S53332F35	CP. 1000pF
C236	23T61523F12	Electrolytic 10μF 16V
C237	23T61523F12	Electrolytic 10μF 16V
C238	23T61523F13	Electrolytic 22μF 16V
C239	23T61523F12	Electrolytic 10μF 16V
C241	23T61523F12	Electrolytic 10μF 16V
C242	23T61523F12	Electrolytic 10μF 16V
C243	23T61523F12	Electrolytic 10μF 16V
C244	23T61523F12	Electrolytic 10μF 16V
C245	21C45322G25	Ceramic 220pF
C246	21C45322G25	Ceramic 220pF
C247	21C45322G25	Ceramic 220pF
C248	21C45322G25	Ceramic 220pF
C249	23T61523F12	Electrolytic 10μF 16V
C250	23T57422F09	Electrolytic 10.0μF 16V
C251	23T61523F12	Electrolytic 10μF 16V
C252	23T61523F12	Electrolytic 10μF 16V
C253	23T61523F12	Electrolytic 10μF 16V
C254	23T61523F12	Electrolytic 10μF 16V
C261	08S53332F23	CP. 100pF
C262	08S53332F23	CP. 100pF
C263	23T61523F12	Electrolytic 10μF 16V
C264	23T61523F12	Electrolytic 10μF 16V
C265	23T61523F12	Electrolytic 10μF 16V
C266	23T61523F12	Electrolytic 10μF 16V
C267	23T61523F12	Electrolytic 10μF 16V
C270	23T61523F12	Electrolytic 10μF 16V
C271	23T61523F12	Electrolytic 10μF 16V
C801	23C42170G32	Electrolytic 470μF 10V
or	23C42170G30	Electrolytic 470μF 16V
C802	23C42170G32	Electrolytic 470μF 10V
or	23C42170G30	Electrolytic 470μF 16V
C803	23S41059P32	TANTAI 22μF 16V
C804	23S41059P32	TANTAI 22μF 16V
C805	23T65374F01	Electrolytic 100μF 10V
C806	23T65374F01	Electrolytic 100μF 10V
C807	08T57705F59	Mylar 2200pF
C808	08T57705F63	Mylar 4700pF
C809	08T57705F59	Mylar 2200pF
C810	23T61523F13	Electrolytic 22μF 16V
C811	23T65374F05	Electrolytic 100pF 16V
C812	23C42170G30	Electrolytic 470μF 16V
C813	23C42170G36	Electrolytic 1000μF 16V
C814	23T61523F12	Electrolytic 10μF 16V
C815	23C42170G30	Electrolytic 470μF 16V
C816	23T61523F12	Electrolytic 10μF 16V
Resistors		
VR201	18T63938F03	VR, K0921-10KAX2
VR202	18T63938F03	VR, K0921-10KAX2
R2001	06S53330F69	CP. 4.7k ohm
R2002	06S53330F69	CP. 4.7k ohm
R201	06S53330F53	CP. 1k ohm
R202	06S53330F53	CP. 1k ohm
R203	06S53330F77	CP. 10k ohm
R204	06S53330F77	CP. 10k ohm
R205	06S53330F53	CP. 1k ohm
R206	06S53330F53	CP. 1k ohm
R207	06S53330F77	CP. 10k ohm
R208	06S53330F77	CP. 10k ohm
R209	06S53330F29	CP. 100 ohm
R210	06S53330F29	CP. 100 ohm

Symbol No.	Part No.	Description
R213	06S53330F73	CP. 6.8k ohm
R214	06S53330F73	CP. 6.8k ohm
R215	06S53330F29	CP. 100 ohm
R216	06S53330F29	CP. 100 ohm
R219	06S53330F29	CP. 100 ohm
R220	06S53330F29	CP. 100 ohm
R221	06S53330F68	CP. 4.3k ohm
R222	06S53330F68	CP. 4.3k ohm
R223	06S53330F94	CP. 51k ohm
R224	06S53330F94	CP. 51k ohm
R225	06S53331F02	CP. 100k ohm
R226	06S53331F02	CP. 100k ohm
R229	06S53331F02	CP. 100k ohm
R230	06S53331F02	CP. 100k ohm
R232	06S53330F77	CP. 10k ohm
R233	06S53330F77	CP. 10k ohm
R234	06S53330F77	CP. 10k ohm
R235	06S53330F77	CP. 10k ohm
R236	06S53331F99	CP. 82k ohm
R237	06S53330F29	CP. 100 ohm
R238	06S53330F29	CP. 100 ohm
R239	06S53330F53	CP. 1k ohm
R253	06S53330F53	CP. 1k ohm
R254	06S53330F53	CP. 1k ohm
R255	06S53330F53	CP. 1k ohm
R256	06S53330F53	CP. 1k ohm
R257	06S53331F02	CP. 100k ohm
R258	06S53331F02	CP. 100k ohm
R259	06S53331F02	CP. 100k ohm
R260	06S53331F02	CP. 100k ohm
R261	06S53330F61	CP. 2.2k ohm
R262	06S53330F61	CP. 2.2k ohm
R263	06S53330F61	CP. 2.2k ohm
R264	06S53330F61	CP. 2.2k ohm
R265	06S53330F65	CP. 3.3k ohm
R266	06S53330F65	CP. 3.3k ohm
R267	06S53330F65	CP. 3.3k ohm
R268	06S53330F65	CP. 3.3k ohm
R269	06S53330F29	CP. 100 ohm
R270	06S53330F29	CP. 100 ohm
R273	06S53330F77	CP. 10k ohm
R274	06S53330F77	CP. 10k ohm
R275	06S53330F77	CP. 10k ohm
R276	06S53330F77	CP. 10k ohm
R277	06S53330F45	CP. 470 ohm
R278	06S53330F45	CP. 470 ohm
R279	06S53330F45	CP. 470 ohm
R280	06S53330F45	CP. 470 ohm
R281	06S53330F74	CP. 7.5k ohm
R282	06S53330F74	CP. 7.5k ohm
R283	06S53330F93	CP. 47k ohm
R284	06S53330F93	CP. 47k ohm
R285	06S53330F66	CP. 3.6k ohm
R286	06S53330F66	CP. 3.6k ohm
R287	06S53330F77	CP. 10k ohm
R288	06S53330F77	CP. 10k ohm
R289	06S53330F94	CP. 51k ohm
R290	06S53330F94	CP. 51k ohm
R291	06S53330F77	CP. 10k ohm
R292	06S53330F77	CP. 10k ohm
R293	06S53330F38	CP. 240 ohm
R294	06S53330F38	CP. 240 ohm
R295	06S53330F38	CP. 240 ohm
R296	06S53330F38	CP. 240 ohm
R297	06S53330F29	CP. 100 ohm
R298	06S53330F29	CP. 100 ohm
R299	06S53330F77	CP. 10k ohm
R301	06D40801G27	33k ohm 1/2W
R810	06C44652G55	Metal film 1.5k ohm 1W
R817	06C44652G22	Metal film 1k ohm 1W

Filter P. C. Board

ICs

IC101	51T52388F01	MSM4066RS
or	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
or	51T52388F02	MSM4066BRS
IC103	51T67023F01	NJM 4558-DMP
or	51T63893F01	µPC4558BG
or	51T65379F01	BA4558 F
IC104	51T67023F01	NJM 4558-DMP
or	51T63893F01	µPC4558BG
or	51T65379F01	BA4558 F
IC105	51T67023F01	NJM 4558-DMP
or	51T63893F01	µPC4558BG
or	51T65379F01	BA4558 F
IC106	51T67023F01	NJM 4558-DMP
or	51T63893F01	µPC4558BG
or	51T65379F01	BA4558 F
IC107	51T67023F01	NJM 4558-DMP
or	51T63893F01	µPC4558BG
or	51T65379F01	BA4558 F

Symbol No.	Part No.	Description
IC108	51T67023F01	NJM 4558-DMP
or	51T63893F01	μPC4558BG
or	51T65379F01	BA4558 F
IC109	51S43471U02	μPC4558C
or	51T52383F01	NJM4558D
IC110	51T52388F01	MSM4066RS
or	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
or	51T52388F02	MSM4066BRS
IC111	51T52388F01	MSM4066RS
or	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
or	51T52388F02	MSM4066BRS
IC112	51T52388F01	MSM4066RS
or	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
or	51T52388F02	MSM4066BRS
Capacitor		
C101	23T61523F12	Electrolytic 10μF 16V
C102	23T61523F12	Electrolytic 10μF 16V
C103	23T61523F12	Electrolytic 10μF 16V
C104	23T61523F12	Electrolytic 10μF 16V
C105	23T61523F12	Electrolytic 10μF 16V
C106	23T61523F12	Electrolytic 10μF 16V
C111	08T57705F75	Mylar 0.047μF
C112	08T57705F75	Mylar 0.047μF
C113	08T57705F75	Mylar 0.047μF
C114	08T57705F75	Mylar 0.047μF
C115	08T57705F75	Mylar 0.047μF
C116	08T57705F75	Mylar 0.047μF
C117	08T57705F75	Mylar 0.047μF
C118	08T57705F75	Mylar 0.047μF
C119	08T57705F75	Mylar 0.047μF
C120	08T57705F75	Mylar 0.047μF
C121	08T57705F75	Mylar 0.047μF
C122	08T57705F75	Mylar 0.047μF
C123	23T61523F29	Electrolytic 1μF 50V
C124	23T61523F29	Electrolytic 1μF 50V
C125	23T61523F29	Electrolytic 1μF 50V
C126	23T61523F29	Electrolytic 1μF 50V
C127	23T61523F30	Electrolytic 2.2μF 50V
C128	23T61523F30	Electrolytic 2.2μF 50V
C139	23T61523F12	Electrolytic 10μF 16V
C140	23T61523F12	Electrolytic 10μF 16V

Symbol No.	Part No.	Description
C141	23T61523F12	Electrolytic 10μF 16V
C142	23T61523F12	Electrolytic 10μF 16V
C143	23T61523F12	Electrolytic 10μF 16V
C144	23T61523F12	Electrolytic 10μF 16V
C145	08T57705F75	Mylar 0.047μF
C146	08T57705F75	Mylar 0.047μF
C147	08T57705F77	Mylar 0.068μF
C148	08T57705F77	Mylar 0.068μF
C149	08T57705F79	Mylar 0.1μF
C150	08T57705F79	Mylar 0.1μF
C151	08T57705F68	Mylar 0.012μF
C152	08T57705F68	Mylar 0.012μF
C153	08T57705F70	Mylar 0.018μF
C154	08T57705F70	Mylar 0.018μF
C155	08T57705F72	Mylar 0.027μF
C156	08T57705F72	Mylar 0.027μF
C157	23T61523F12	Electrolytic 10μF 16V
C158	23T57422F09	Electrolytic 10μF 16V
C163	23T61523F29	Electrolytic 1μF 50V
C164	23T61523F29	Electrolytic 1μF 50V
C165	23T61523F28	Electrolytic 0.47μF 50V
C166	23T61523F28	Electrolytic 0.47μF 50V
C169	23T61523F29	Electrolytic 1μF 50V
C170	23T61523F29	Electrolytic 1μF 50V
C171	23T61523F12	Electrolytic 10μF 16V
C172	23T61523F12	Electrolytic 10μF 16V
C173	23T61523F12	Electrolytic 10μF 16V
C174	23T61523F12	Electrolytic 10μF 16V
C175	23T61523F12	Electrolytic 10μF 16V
C176	23T61523F12	Electrolytic 10μF 16V
C183	23T61523F28	Electrolytic 0.47μF 50V
C184	23T61523F28	Electrolytic 0.47μF 50V
Resistors		
R105	06S53330F77	CP. 10k ohm
R106	06S53330F77	CP. 10k ohm
R107	06S53330F80	CP. 13k ohm
R108	06S53330F80	CP. 13k ohm
R109	06S53330F84	CP. 20k ohm
R110	06S53330F84	CP. 20k ohm
R111	06S53330F92	CP. 43k ohm
R112	06S53330F92	CP. 43k ohm
R113	06S53330F96	CP. 62k ohm
R114	06S53330F96	CP. 62k ohm
R115	06S53331F01	CP. 91k ohm

Symbol No.	Part No.	Description
R116	06S53331F01	CP. 91k ohm
R117	06S53330F29	CP. 100 ohm
R118	06S53330F29	CP. 100 ohm
R123	06S53330F56	CP. 1.3k ohm
R124	06S53330F56	CP. 1.3k ohm
R125	06S53330F53	CP. 1k ohm
R126	06S53330F53	CP. 1k ohm
R127	06S53330F55	CP. 1.2k ohm
R128	06S53330F55	CP. 1.2k ohm
R129	06S53331F02	CP. 100k ohm
R130	06S53331F02	CP. 100k ohm
R131	06S53331F02	CP. 100k ohm
R132	06S53331F02	CP. 100k ohm
R133	06S53331F02	CP. 100k ohm
R134	06S53331F02	CP. 100k ohm
R135	06S53330F53	CP. 1k ohm
R136	06S53330F53	CP. 1k ohm
R137	06S53331F02	CP. 100k ohm
R138	06S53331F02	CP. 100k ohm
R139	06S53330F77	CP. 10k ohm
R140	06S53330F77	CP. 10k ohm
R141	06S53330F74	CP. 7.5k ohm
R142	06S53330F74	CP. 7.5k ohm
R143	06S53330F29	CP. 100 ohm
R144	06S53330F29	CP. 100 ohm
R145	06S53330F77	CP. 10k ohm
R146	06S53330F77	CP. 10k ohm
R147	06S53330F89	CP. 33k ohm
R148	06S53330F89	CP. 33k ohm
R149	06S53330F92	CP. 43k ohm
R150	06S53330F92	CP. 43k ohm
R151	06S53330F91	CP. 39k ohm
R152	06S53330F91	CP. 39k ohm
R153	06S53330F91	CP. 39k ohm
R154	06S53330F91	CP. 39k ohm
R155	06S53330F92	CP. 43k ohm
R156	06S53330F92	CP. 43k ohm
R157	06S53330F91	CP. 39k ohm
R158	06S53330F91	CP. 39k ohm
R159	06S53330F91	CP. 39k ohm
R160	06S53330F91	CP. 39k ohm
R161	06S53330F29	CP. 100 ohm
R162	06S53330F29	CP. 100 ohm
R167	06S53330F53	CP. 1k ohm
R168	06S53330F53	CP. 1k ohm
R169	06S53330F51	CP. 820 ohm

Symbol No.	Part No.	Description
R170	06S53330F51	CP. 820 ohm
R171	06S53330F53	CP. 1k ohm
R172	06S53330F53	CP. 1k ohm
R173	06S53330F69	CP. 4.7k ohm
R174	06S53330F69	CP. 4.7k ohm
R175	06S53330F69	CP. 4.7k ohm
R176	06S53330F69	CP. 4.7k ohm
R177	06S53331F02	CP. 100k ohm
R178	06S53331F02	CP. 100k ohm
R183	06S53331F02	CP. 100k ohm
R184	06S53331F02	CP. 100k ohm
R187	06S53331F02	CP. 100k ohm
R188	06S53331F02	CP. 100k ohm
R189	06S53331F02	CP. 100k ohm
R191	06S53331F02	CP. 100k ohm
R192	06S53331F02	CP. 100k ohm
R193	06S53331F02	CP. 100k ohm
R194	06S53331F02	CP. 100k ohm
R195	06S53331F02	CP. 100k ohm
R196	06S53331F02	CP. 100k ohm

Crossover P. C. Board

Diodes

D0011	48S134816	DIODE, 1S1555
D0012	48S134816	DIODE, 1S1555

ICs

IC0011	51T63896F01	μPD4069BG
• IC0011	51T67484F01	μPC4584
or	51T67485F01	TC4584

Capacitors

C0011	23T57422F09	ELEC	10μF	16V
C0012	23T57422F09	ELEC	10μF	16V

Resistors

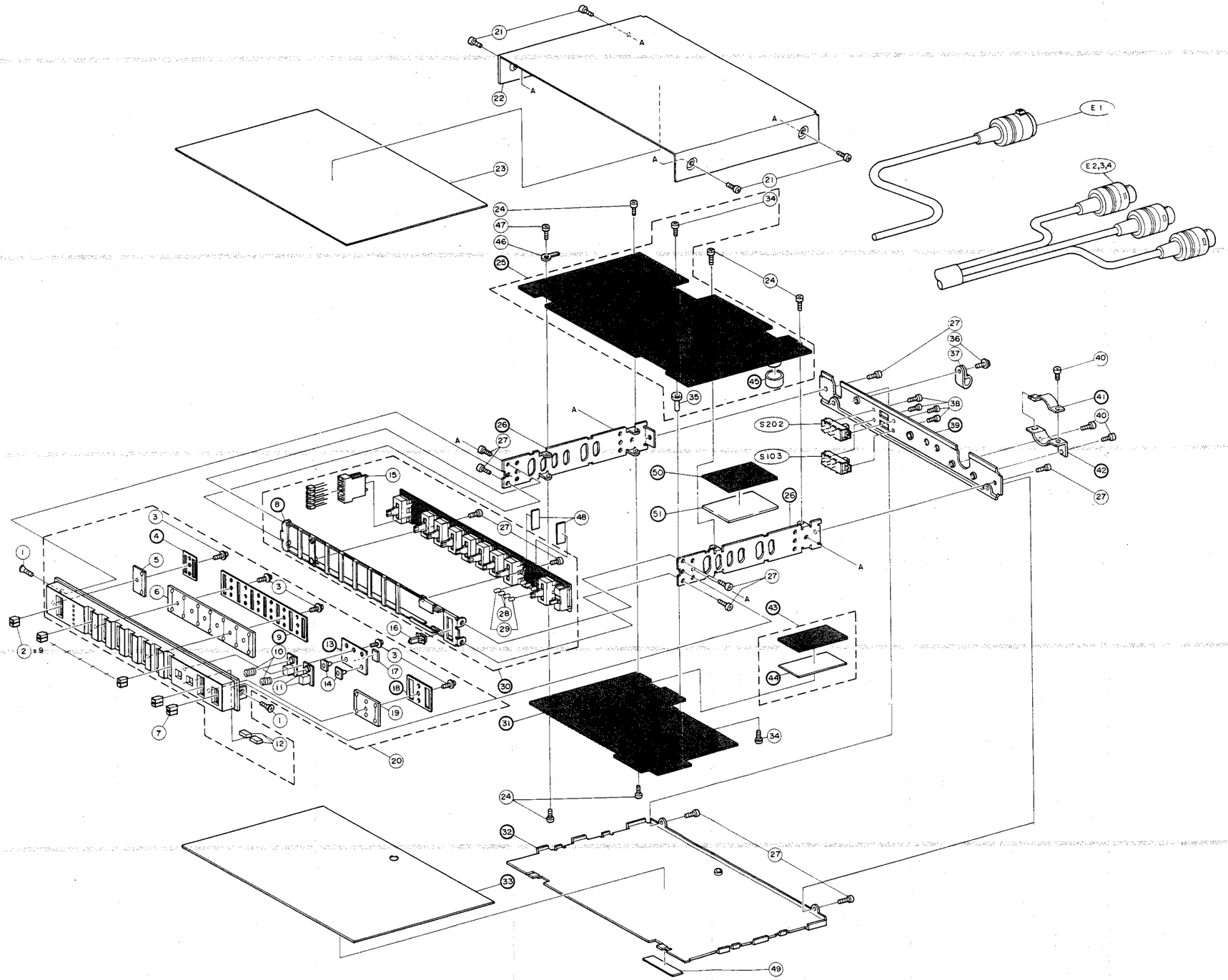
R0011	06S55428F97	CP. 22k ohm
R0012	06S55428F97	CP. 22k ohm
R0013	06S55428F97	CP. 22k ohm
R0014	06S55428F97	CP. 22k ohm
R0015	06S55428F81	CP. 4.7k ohm
R0016	06S55428F81	CP. 4.7k ohm
R0017	06S55428F14	CP. 100k ohm
• R0017	Not Used	
R0018	06S55428F14	CP. 100k ohm
• R0018	Not Used	

• For North American Version only (Before Serial No. 40812000).

Symbol No.	Part No.	Description
R0019	06S55066F30	CP. 470k ohm
● R0019	Not Used	
R0020	06S55066F30	CP. 470k ohm
● R0020	Not Used	
Transistors		
Q0011	48T42182U01	TR 2SD661
Q0012	48T42182U01	TR 2SD661
Switching P. C. Board		
IC		
IC0001	51T67484F01	μPC4584
or	51T67485F01	TC4584
Transistors		
Q0001	48T42182U01	2SD661
Q0002	48T42182U01	2SD661
Capacitors		
C0001	23T57422F14	Electrolytic 47μF 6.3V
C0002	23T57422F14	Electrolytic 47μF 6.3V
Miscellaneous Parts		
E1	01T66114F01	Assy., DIN Connector (Input)
E2		
E3	01T66115F01	Assy., DIN Connector (Output)
E4		
S202	40T66122F01	Switch, Slide (ST/MONO, PHASE)
S103	40T66122F01	Switch, Slide (ST/MONO, PHASE)

● For North American Version only (Before Serial No. 40812000).

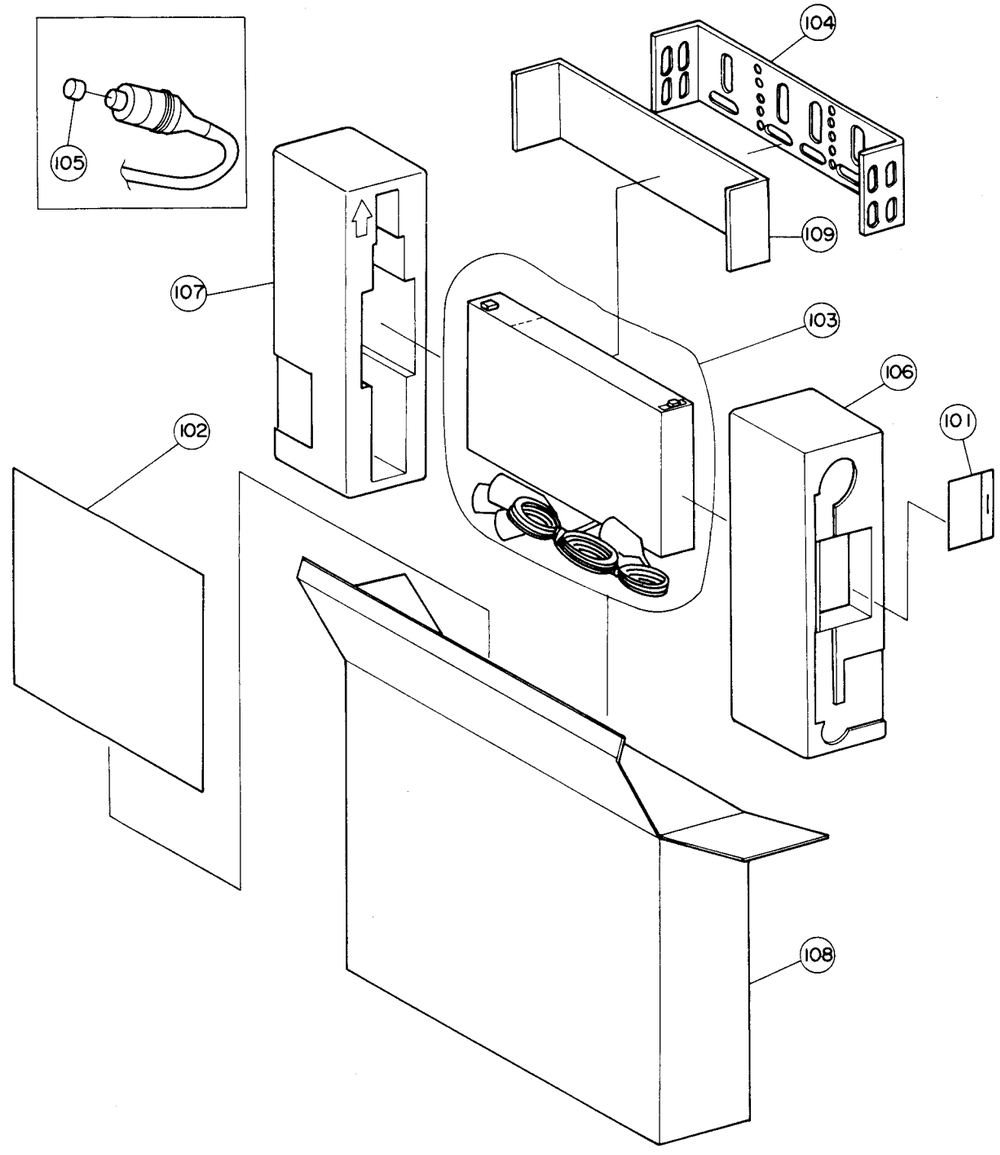
Exploded View (General)



Mechanical Parts List

Symbol No.	Idx.	Part No.	Description
1	4A	03S40011G95	Screw, Countersink (M2.6x4)
2	5A	36A66199F01	Knob, Slide
3	4B	03S40012G58	Screw, Tapping (M2x5)
4	4B	*	Cover, Volume (C)
5	4B	75B66181F03	Cushion, Volume (C)
6	4B	75B66181F01	Cushion, Volume
7	5B	36A66199F02	Knob, Slide
8	4A	*	Chassis, Front
9	4B	*	Cover, Volume
10	5B	41A66560F03	Spring, (A)
11	5B	36A66188F01	Knob, Push
12	5B	75S62361F48	Cushion, Knob
13	5C	*	Cover, Switch
14	5C	36A66204F01	Knob, Base
15	4C	15B66202F01	Cover, LED
16	4C	36A66201F01	Knob, Switch
17	5C	75S62361F49	Cushion, Rubber
18	5C	*	Cover, Volume (B)
19	5C	75B66181F02	Cushion, Volume (B)
20	5C	13C66179F01	Assy., Nosepiece
21	1C	03S44205G41	Screw, Pan (M2.6x4)
22	1C	15B66187F01	Cover, Top
23	1C	14A67219F02	Cover, Insulator (B)
24	1C	03S44205G07	Screw, Pan (M2.6x5)
25	3C	*	Assy., Main P.C.B.
26	3C	*	Chassis, Side
27	4C	03S44205G30	Screw., Pan (M2.6x4)
28	4C	43B41728U19	Lamp, Bush
29	4C	43B41728U13	Lamp, Bush
30	5C	*	Assy., Front - Panell and Chassis
31	5C	*	Assy., Filter P.C.B.
32	5C	*	Chassis, Bottom
33	6C	*	Cover, Insulator
34	2E	03C40014G06	Screw, w/Washer (M2.6x5)
35	3D	46A67172F01	Stud.
36	3F	03S40018G01	Screw, Tapping (M3x6)
37	3F	42B41424G03	Cord, Clamp
38	3F	03S40011G33	Screw, Pan (M2x4)
39	3F	*	Chassis, Rear
40	3F	03S44205G05	Screw, Pan (M3x5)
41	3F	*	Bracket Clamp (B)
42	4F	*	Bracket Clamp (A)
43	4E	*	Assy., Panell - Switching
44	5E	*	Cover, Insulator
45	3E	*	Cover, Shield
46	2C	29A737272	Lug, wrap around
47	2C	03S44205G48	Screw, Pan (M2.6x5)
48	4D	14S58462F63	Cover, Insulator
49	6E	54S60913F29	Label, Square (Cover Bottom)
50	4D	*	Assy., Crossover P.C.B.
51	4D	*	Insulater, Fiber

Packing Method View



Packing Parts List

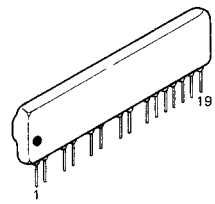
Symbol No.	Part No.	Description
	Packing Assembly Parts	
101	01V66500F33	Assy., Kit Instalation
△102	01V66500F34	Assy., Pamphlet
■102	68P65432F43	Owners Manual
103	56B40990T22	Sack, Polyethylene, POLY
104	07B52108F04	Bracket, "U" MTG
105	15T44235F01	Cover, Connector
106	56D66974F01	Tray, Packing
107	56D66974F02	Tray, Packing
108	56S60227F59	Carton, Packing (IND)
109	56A65131F01	Pad, Sheet
Labels		
	54B42124G01	Label, Serial No (Carton Packing (IND), Chassis Bottom)
	54A67220F01	Label, Caution (Covertop)
	54S60911F57	Label, Composite (Chassis Bottom)

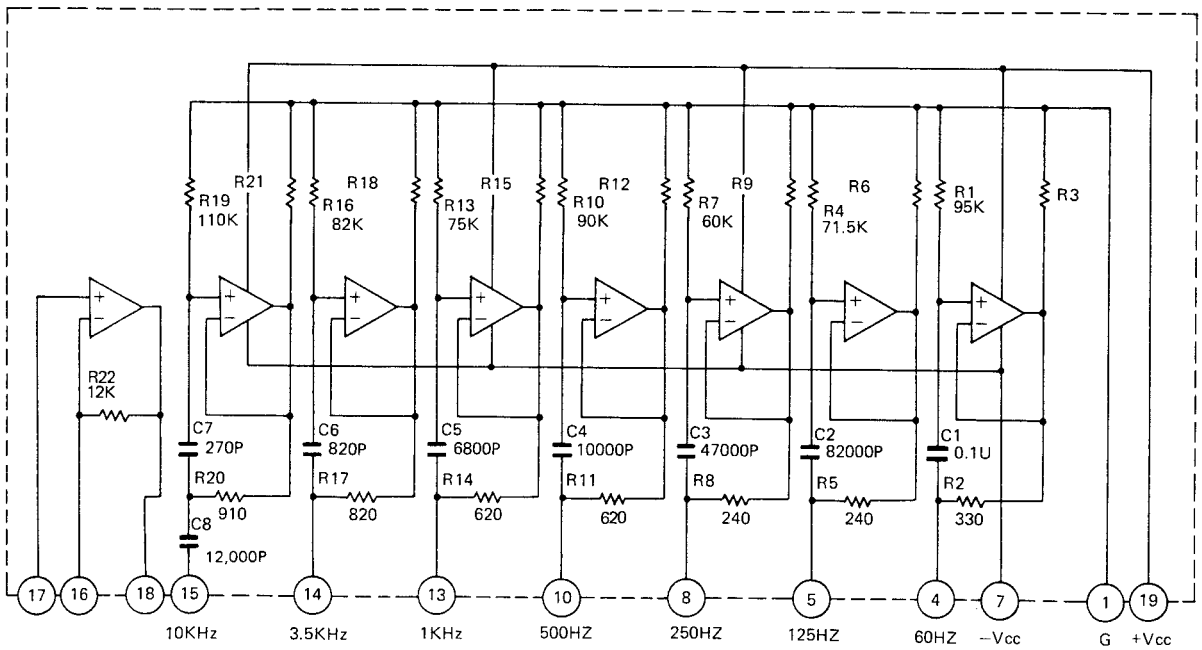
△ for North American Version only

■ for General Foreign Version only

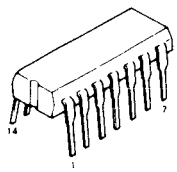
Semiconductors Lead Identifications

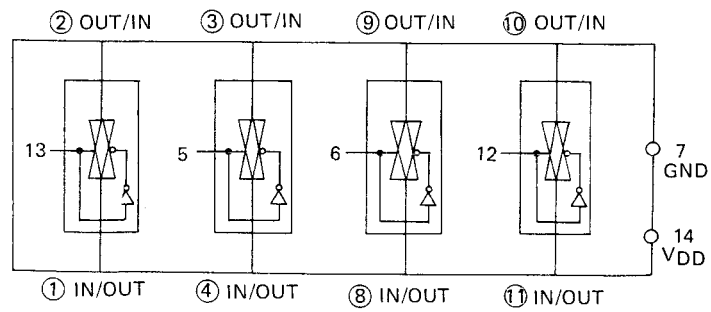
THG21005 IC203, IC204



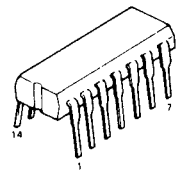


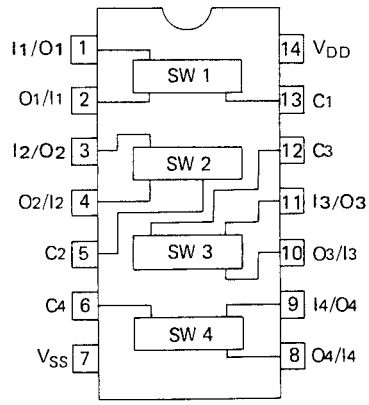
TC4066BP IC202, IC101, IC110–112



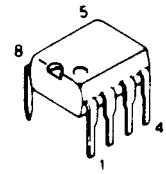


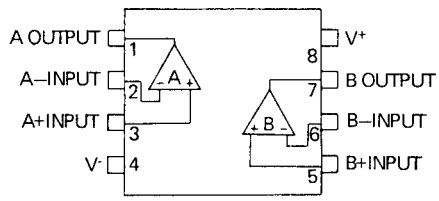
MSM4066BRS IC202, IC101, IC110–112



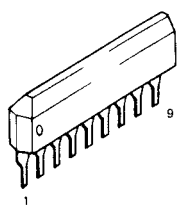


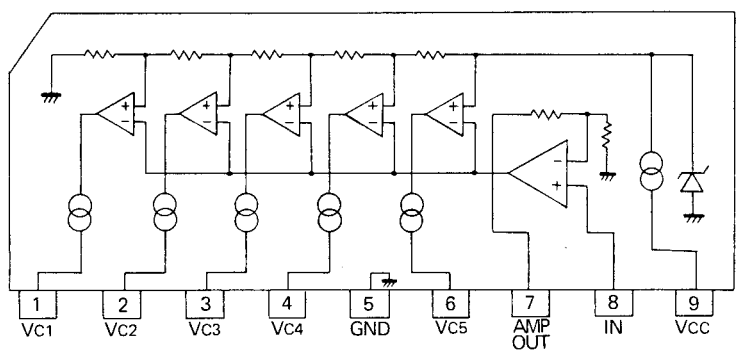
NJM4558D IC201, IC206–209
IC103–109



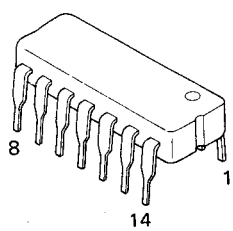


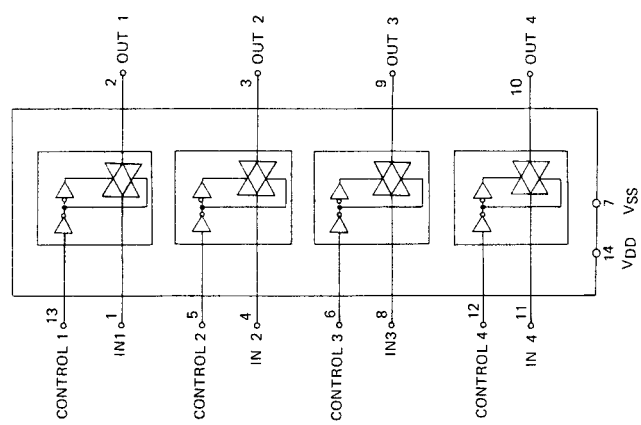
LB1403 IC205, IC103–108



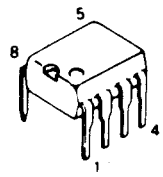


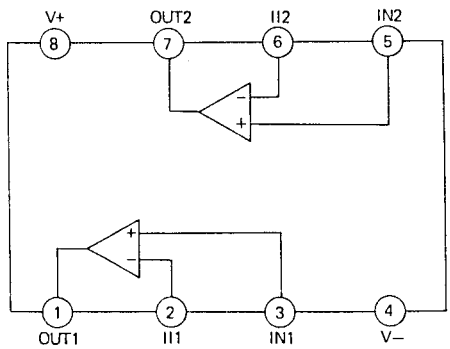
MC14066B IC202, IC101, IC110–112



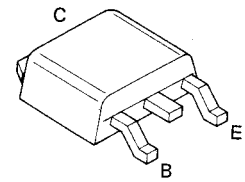


μPD4558G IC103–108

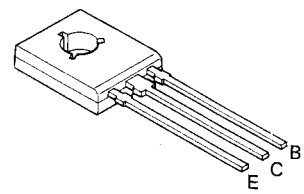




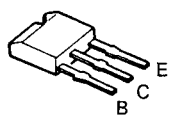
2SD1295 Q802



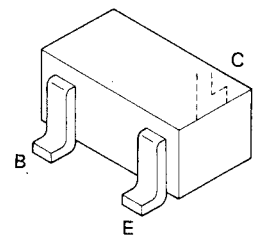
2SB1009 Q806



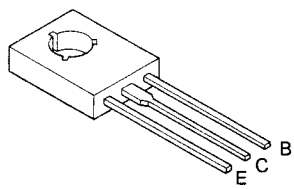
2SD1330 Q201
2SD661 Q0001, Q0002, Q0011 , Q0012



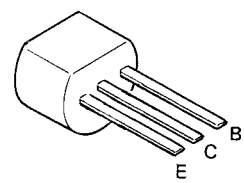
2SD602A Q803, Q804, Q808



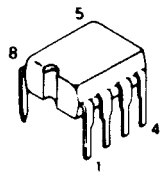
2SC2690 Q805

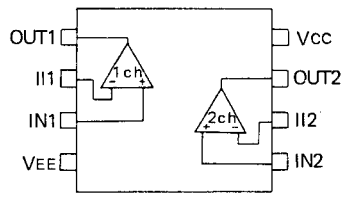


2SC1815-Y Q202

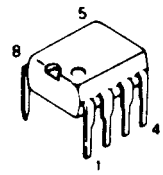


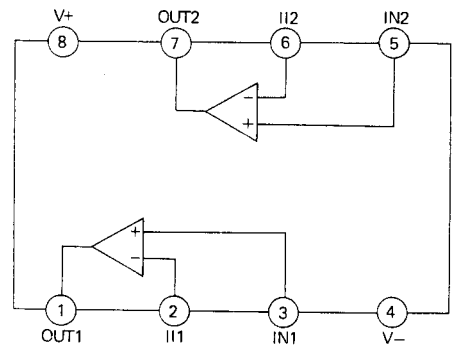
BA4558 IC103–108





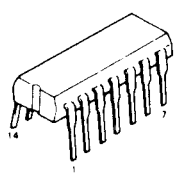
μPC4558C IC201, IC206–209', IC101

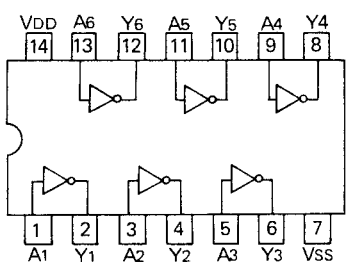




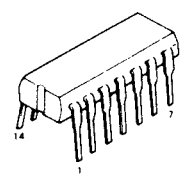
μPC4584 IC0001

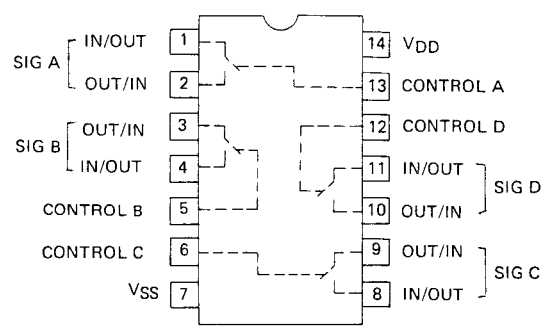
• **μPC4584** IC0011





MSM4066 IC202, IC101, IC110–112





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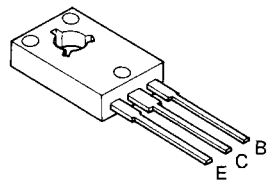
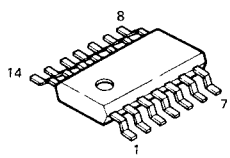
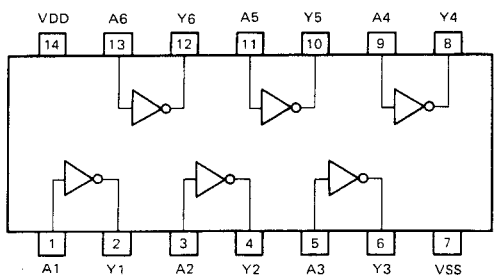
2SD600K Q805



μPD4069BG IC0011

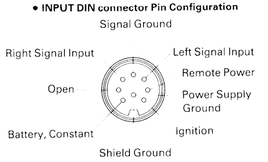




Schematic Diagram

ICs	IC201 – IC206	IC0001	IC101	IC103 – IC109	IC0011	IC111 IC112	IC207 – IC209	
Transistors	Q0001 Q0002	Q802 – Q806	Q201 Q202 Q808	Q0011 Q0012				
Diodes	LD301 – LD314 D801 – D804	D201 – D204	D806 – D808	D0011 D0012				

• INPUT DIN connector Pin Configuration



• OUTPUT DIN connector Pin Configuration

UNLESS OTHERWISE SPECIFIED,

1. ALL RESISTANCE VALUES ARE IN OHMS K : 1,000 M : 1,000,000
2. ALL RESISTORS ARE RATED AT ⅛ WATT, 5%
3. ALL CAPACITANCE VALUES ARE IN MICRO-FARAD (μF) P : 10 ^ μF
4. ALL CAPACITORS ARE RATED AT 50WV

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲
IC201	0	0	0	−7.7	0	0	7.7												
IC202	0	0	0	0	8.1	8.1	−8.1	0	0	0	0	−8.1	−8.1	8.1					
IC203,204	0	–		0	0		−6.5	0		0	–		0	0	0	0	0	0	6.5
IC206	0	0	0	−7.7	–	–	–	7.7											
IC205	11.7	11.7	11.7	11.7	0	11.7	0	0	12.7										

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
IC101	0	0	0	0	8.1	−8.1	−8.1	0	0	0	0	8.1	8.1	8.1
IC103	0	0	0	−7.0	0	0	0	7.0						
IC104	0	0	0	−7.0	0	0	0	7.0						
IC105	0	0	0	−7.0	0	0	0	7.0						
IC106	0	0	0	−7.0	0	0	0	7.0						
IC110,111 112	0	0	0	0	−8.1	−8.1	−8.1	0	0	0	0	−8.1	−8.1	−8.1

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧
IC107	0	0	0	−7.0	0	0	0	7.0
IC108	0	0	0	−7.0	0	0	0	7.0
IC109	0	0	0	−7.8	0	0	0	7.8
IC207,208	0	0	0	−7.5	0	0	0	7.5

IC (V)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
IC209	0	0	0	−7.8	0	0	0	7.8						
IC0001	−8.1	8.1	8.1	−8.1	−8.1	8.1	−8.1	−8.1	8.1	8.1	−8.1	−8.1	8.1	8.1
IC0011	8.1	−8.1	−8.1	8.1	8.1	−8.1	−8.1	−8.1	8.1	8.1	−8.1	−8.1	8.1	8.1

Transistor(V)	B	C	E
Q201	0.4	11.7	0
Q202	0.7	0	0
Q802	0.3	12.0	0
Q803	0	12.0	0.3
Q804	12.3	13.0	12.1
Q805	13.0	13.3	12.3
Q806	12.7	13.3	13.5
Q808	0.7	0	0
Q0001	−7.4	−8.1	−8.1
Q0002	−8.1	8.1	−8.1
Q0011	0	8.1	−8.1
Q0012	−8.1	8.1	−8.1

• For North American Version only
(Before Serial No. 40812000).